

STUDIES ON THE EFFECT OF CERTAIN INORGANIC CHEMICALS ON THE GERMINATION BEHAVIOUR OF THE SEEDS OF *EPHEDRA FOLIATA* BLOSS.

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The present investigation deals with the effect of potassium nitrate, potassium dihydrogen orthophosphate and magnesium sulphate on the germination of *Ephedra foliata*. It was found that potassium nitrate and magnesium sulphate were more effective in promoting the germination.

Keywords : Germination; *Ephedra foliata*.

Ephedra foliata Bloss. is a woody climber and is the only gymnosperm species found wild in the arid regions of Thar desert. In spite of the heavy seed output, the distribution of the plant is localized. This fact prompted the present studies on seed germination with the object to investigate the effect of certain inorganic chemicals viz., potassium nitrate, potassium dihydrogen ortho-phosphate and magnesium sulphate on the germination of seeds of *Ephedra foliata* Bloss.

Seeds of *Ephedra foliata* Bloss, were obtained through the courtesy of Professor C.P. Mishra, H.G. University of Saugar (M.P.), India, Seeds were soaked for 24 hours in aqueous solutions of different concentrations of the chemicals mentioned above.

The various concentrations ranging from 10-1000 ppm were used. Soaked seeds were washed thoroughly in distilled water after 24 hours. Seeds soaked in distilled water were taken as control in all the cases. Treated seeds were then kept for germination in petridishes over filter paper, kept moist by distilled water. Three replicates of 10 seeds each were used for each concentration. The experiments were conducted at the laboratory conditions. Germination recorded upto 12 days.

All the three salts promoted germination in comparison to control (Table 1.) Different concentrations (50-200 ppm) of potassium nitrate and magnesium sulphate provide

Table 1. Effect of KH_2PO_4 , MgSO_4 and KNO_3 on seed germination of *Ephedra foliata*.

Chemical used	Percentage germination (concentration in ppm)						Variance		Table value	
	Control	10	50	100	500	1000	Ratio 'F'	5%	1%	
KH_2PO_4	40	60	46.6	43.3	46.6	33.3	9.328*	2.85	4.46	
MgSO_4	50	60	93.3	93.3	96.6	80.0	12.972*	2.85	4.46	
KNO_3	76.6	76.6	76.6	86.6	96.6	73.3	6.143*	2.85	4.46	

Anova Table						
Source of variation	Degree of freedom	Sum of squares	Mean sum of squares	Variance ratio 'F'	Table value	
					5%	1%
Replication	2	98.41	49.20	0.197	3.2	5.1
Control Vs. Treatment	1	920.89	920.89	3.68	4.0	7.3
Among concentration	6	7053.72	1175.62	4.70*	2.3	3.2
Among chemical	2	14710.86	7355.42	29.45**	3.2	5.1
Interaction (Chemical x concentration)	12	8501.58	708.46	2.83*	2.0	2.6
Error	40	9989.15	249.72	—	—	—

* Significant ** Highly significant

better chances of seed germination, with a maximum at 200 ppm. Lower concentrations (10 ppm) of potassium dihydrogen orthophosphate also supported germination to some extent. Germination was inhibited by higher concentrations of all the three chemicals.

Nitrates have long been known as powerful agents in germination. As reported earlier, the low concentrations of potassium nitrate does promote germination (Baron (1963; Mohnot and Chatterji, 1965).

Loo and Tang (1945) reported accelerated rate of germination of germination of mung, bean, maize and cabbage in a wide range of concentration of manganese sul-

phate. Magnesium sulphate, in the present study accelerated the rate of germination. Lugo (1955), found that the nitrate group is more effective in increasing germination than sulphate group. The present results are similar to those of Loo and Tang (1945). On the contrary, potassium dihydrogen orthophosphate induces germination at lower concentrations as observed in the present work.

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